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<u>REMARKS</u>

In view of the following discussion, the Applicants submit that none of the claims now pending in the application are anticipated under the provisions of 35 U.S.C. § 102. The Applicants believe that all of these claims are now in allowable form.

I. REJECTIONS OF CLAIMS 1-14 UNDER 35 U.S.C. § 102

The Examiner rejected claims 1-14 under 35 U.S.C. §102 as being anticipated by Gupta, Sandeep K.S. and Srimani, Pradip K. ("An Adaptive Protocol for Reliable Multicast in Mobile Multi-hop Radio Networks," (IEEE, 1999)) herein referred to as Gupta. Applicants respectfully traverse the rejection.

Gupta teaches a protocol for reliable multicast in mobile multi-hop radio networks. Specifically, it introduces the use of "forwarding region" of a multicast tree node u, where the forward region is defined as the maximal region (subgraph) of the topology graph around u which consists of only non-tree nodes. "In order to flood its forwarding region with message m, a node u simply broadcasts m to all its neighbors." "The idea is to flood the message when the multicasting tree is fragmented using the forwarding regions to restrict the flooding to regions where the topology has changed". (See Gupta, Page 3, right Column)

The Examiner's attention is directed to the fact that Gupta fails to disclose or suggest a method and network <u>where a path tree is maintained for each source node having that source node as a root node, a parent node, and zero or more children nodes and where a determination is made whether to forward an update message to children nodes, if any, in the path tree maintained for the source node that originated the update message in response to the information in a received update message,</u> as positively claimed by the Applicants. Applicants' independent claims 1 and 14 positively recite:

> 1.   In a multi-hop network including a plurality of nodes, a method for disseminating topology and link-state information over the multi-hop network, comprising:

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> maintaining a path tree for each source node in the network that can produce an update message, each path tree having that source node as a root node, a parent node, and zero or more children nodes;
>> receiving an update message from the parent node in the path tree maintained for the source node that originated the received update message, the update message including information related to a link in the network; and
>> determining whether to forward the update message to children nodes, if any, in the path tree maintained for the source node that originated the update message in response to the information in the received update message.
> (Emphasis added)

> 14. A network, comprising:
>> a plurality of nodes in communication with each other over communication links, each node maintaining a path tree for each source node in the network that can produce an update message, each path tree having that source node as a root node, a parent node, and zero or more children nodes,
>> wherein one of the nodes (i) receives an update message from the parent node in the path tree maintained for the source node that originated the received update message, the update message including information related to a link in the network, (ii) and determines whether to forward the update message to children nodes, if any, in the path tree maintained for the source node originated the updated message in response to the information in the received update message. (Emphasis added)

In one embodiment, Applicants' invention teaches a method and network that uses the concept of reverse-path forwarding to broadcast each link-state in the reverse direction along a tree, e.g., using a tree formed by minimum-hop paths as an example. That is, each link-state update is broadcast along the path rooted at the source node of the update. The minimum-hop-path trees (one tree per source) are updated dynamically using the topology and link-state information that are received along the minimum-hop-path trees themselves. Based on the information received along the minimum-hop-path trees, each node computes a parent node and children nodes, if any, for the minimum-hop-path tree rooted at each source node. Each routing node may receive and forward updates originating from a source node along the minimum-hop-path tree rooted at that source node. In this fashion, topology and link state information are disseminated without flooding the entire ad hoc network. (See Applicants' specification, page 16, line 3- page 23, line 3)

In contrast, Gupta only teaches the concept of a forwarding region where flooding is limited only to this region. Thus, clearly, Gupta fails to teach or suggest

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Applicants' novel approach and in fact clearly **teaches away** from Applicants' invention. The Examiner broadly indicated that Gupta's sections 2, first paragraph, 3.1, and 3.1.1 disclose Applicants' tree structure as claimed. Applicants respectfully request the Examiner to particularly point out in the Gupta reference where is the teaching of Applicants' path tree structure and the manner of use of Applicants' path tree structure. For example, where is the teaching in Gupta that a determination is made as to whether to forward update message to children nodes in a path tree maintained for the source node that originated the update message? It is respectfully submitted that Gupta fails to anticipate Applicants' independent claims 1 and 14.

Dependent claims 2-13 depend, either directly or indirectly, from claim 1 and recite additional features thereof. As such and for the exact same reasons set forth above, the Applicants submit that claims 2-13 are also not anticipated by the teaching of Gupta. Therefore, the Applicants submit that all these dependent claims also fully satisfy the requirements of 35 U.S.C. § 102 and are patentable thereunder.

<center>Conclusion</center>

Thus, the Applicants submit that none of the claims, presently in the application, is anticipated under the provisions of 35 U.S.C. § 102. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

<div align="center">Respectfully submitted,</div>

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